

## ABSTRACT

Genetically-encodable, environmentally-responsive fusion proteins comprising ELP peptides. Such fusion proteins exhibit unique physico-chemical and functional properties that can be modulated as a function of solution environment. The invention also provides methods for purifying the FPs, which take advantage of these unique properties, including high-throughput purification methods that produce high yields (e.g., milligram levels) of purified proteins, thereby yielding sufficient purified product for multiple assays and analyses. The high throughput purification technique is simpler and less expensive than current commercial high throughput purification methods, since it requires only one transfer of purification intermediates to a new multiwell plate.